

Washington Park Arboretum

BULLETIN

ELISABETH C. MILLER LIBRARY
UW Botanic Gardens
Box 354115
Seattle, Washington 98195-4115
206-543-0415

JAN 19 2017



Published by the Arboretum Foundation
Winter 2017

The "Washington Park Arboretum Bulletin" is a benefit of Arboretum Foundation membership.
For information on membership or advertising opportunities, contact the Arboretum Foundation at 206-325-4510 or info@arboretumfoundation.org.

Washington Park Arboretum

The Arboretum is a 230-acre dynamic garden of trees and shrubs, displaying internationally renowned collections of oaks, conifers, camellias, Japanese and other maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

Arboretum Foundation

The Arboretum Foundation's mission is to create and strengthen an engaged community of donors, volunteers and advocates who will promote, protect and enhance the Washington Park Arboretum for current and future generations.

2300 Arboretum Drive East, Seattle, WA 98112
206-325-4510 voice / 206-325-8893 fax
info@arboretumfoundation.org
www.arboretumfoundation.org
Office hours: 8:30 am–4:30 pm weekdays
Gift shop hours: 10 am–4 pm daily,
closed holidays

OFFICERS OF THE ARBORETUM FOUNDATION BOARD OF DIRECTORS

Paige Miller, Executive Director

Sherrey Luetjen, President	Paul (Skip) Vonckx, Vice President
Diane Adachi, Vice President	
Jason Morse, Vice President	Carolyn Kitchell, Secretary
Jim Reid, Vice President	Craig Trueblood, Treasurer

BOARD OF DIRECTORS

Steve Alley	Jeanne Peterson
Meg Harry	Anne Phelps
Terry Holme	Patricia Simpson
Carolyn Kitchell	Trina Wherry
Noriko Palmer	Roger Williams
Chris Pendl	Jenny Wyatt

EX OFFICIO

Paige Miller, Executive Director,
Arboretum Foundation
Jesús Aguirre, Superintendent,
Seattle Parks and Recreation

Graham Visitors Center

Open 9 am–5 pm daily.

Open on these holidays: Presidents Day, Memorial Day,
Fourth of July, Labor Day.

The Arboretum is accessible by Metro Transit buses #11,
#43 and #48. For more information: www.metro.kingcounty.gov

University of Washington Botanic Gardens

The University of Washington manages the Arboretum's collections, horticultural programs, facilities and education programs through the University of Washington Botanic Gardens. It owns some of the land and buildings and all of the collections.

206-543-8800 voice / 206-616-2871 fax

Office hours: 9 am–5 pm weekdays

www.uwbotanicgardens.org

Fred Hoyt, Interim Director

Seattle Parks and Recreation

The City of Seattle owns most of the Arboretum's land and buildings. Seattle Parks and Recreation is responsible for park functions throughout the Arboretum and manages and operates the Japanese Garden.

206-684-4556 voice / 206-684-4304 fax

Washington Park Arboretum Bulletin

Niall Dunne, Editor

Constance Bollen, cbgraphics, Graphic Design

Cynthia E. Duryee, Copy Editor

Miller Library staff, Proofreading/Factchecking

EDITORIAL BOARD

Betsy Anderson, Landscape Architect, National Park Service	Brian R. Thompson, Manager and Curator
Janine Anderson, Garden Designer & Writer	Elisabeth C. Miller Library, UW Botanic Gardens
Constance Bollen, Graphic Designer	Cass Turnbull, Plant Amnesty Founder
Walt Bubelis, Professor Emeritus, Edmonds Community College	Phil Wood, Garden Designer & Writer
Cynthia E. Duryee, Writer/Editor	John Wott, Director Emeritus, Washington Park Arboretum
Daniel J. Hinkley, Author, Lecturer, Horticultural Consultant	BOTANICAL EDITOR Randall Hitchin, Special Projects Manager, Arboretum Foundation
Daniel Mount, Garden Designer	CONTRIBUTING EDITOR Rebecca Alexander, Plant Answer Line Librarian
Christina Pfeiffer, Horticultural Consultant	Elisabeth C. Miller Library, UW Botanic Gardens
Richie Steffen, Coordinator of Horticulture, Elisabeth C. Miller Botanical Garden	

WINTER 2017 VOLUME 78. ISSUE 4.

© 2017 The Arboretum Foundation. ISSN 1046-8749.

CONTENTS



- | | |
|---|---|
| 2 A Winter Salute to Our Dedicated Crew
— <i>Paige Miller</i> | 18 Nature for Human Health and Wellness—
<i>Kathleen L. Wolf</i> |
| 3 New Plantings in the Arboretum:
The Year in Review— <i>Ray Larson</i> | 23 PLANT ANSWER LINE: Am I Blue?
Tracing the Sources of Indigo
— <i>Rebecca Alexander</i> |
| 8 Birds in the Arboretum: A Photo Essay—
<i>Andres Diaz</i> | 26 IN A GARDEN LIBRARY: New Books for Pacific
Northwest Gardeners— <i>Brian R. Thompson</i> |
| 12 Hortus Botanicus of Amsterdam
— <i>Walt Bubelis</i> | 28 Going to Seed — <i>Charles Goodrich</i> |
| 16 HIDDEN TREASURES OF THE ARBORETUM
'Collyer's Gold' Western Red Cedar
— <i>Daniel Mount</i> | |



ABOVE: A Golden-Crowned Kinglet on Foster Island, Washington Park Arboretum, captured a fraction of a second before flying away. (Photo by Andres Diaz)

ON THE COVER: A Bald Eagle flying near flocks of American Coots and American Wigeons swimming in Lake Washington. The eagle was waiting for that perfect moment to fly low to snatch one. (Photo by Andres Diaz; see more of Andres' bird photos on page 8.)

A Winter Salute to Our Dedicated Crew Members

This is my tenth winter in the Arboretum. For me, winter is a great time to reflect and take stock. But as I look out the window, I see people who have not slowed down, who are out in the cold and the damp, doing what they do: taking care of this special place. The crews from Seattle Parks and from the UW Botanic Gardens are a small group tasked with an enormous job: caring for the 230 acres of the Arboretum.

To work here is to experience the Arboretum as our visitors do—as one of Seattle’s most treasured green spaces, and as a place that attracts hundreds of thousands of visitors every year: dog walkers, parents with strollers, UW track and cross country teams, immigrant families promenading Azalea Way in their Sunday best, botany and horticulture classes from local community colleges, neighbors, and visitors from around the world. They experience it as a place of beauty and respite, of scientific value and excellence.

Meeting our visitors’ expectations is challenging. Our crews are responsible for the showplaces like Azalea Way and the Witt Winter Garden. A small Parks crew is dedicated solely to the specialized care of our gem within the Arboretum, the Seattle Japanese Garden. Some mow the grass and pick up the trash. Other crew members care for the thousands of young plants in the eco-geographic gardens from around the Pacific Rim; the shoreline areas at Foster Island threatened by invasive plants; the collections of magnolias, camellias, mountain ashes and more along Arboretum Drive; and the native matrix that predominates along Lake Washington Boulevard—that well-traveled commuter route that sees 18,000 cars go by on each and every work day.

Yes, expectations are high, and the staff delivers. In 2001, when our Master Plan was adopted, a study showed that public gardens of our size



Eight of the 13 year-round UW and City crew members who care for our beautiful Arboretum and Japanese Garden.

required a crew of over 40 people. Instead, today we have a maintenance crew of only one-third that size! It is a testament to the crew’s dedication and ability to inspire and retain volunteer support from the community, as well as its wise management of time, that such a small group can make the Arboretum shine the way it does.

I see crew members at work outdoors in the winter rain, and in the heat of a scorching summer day. One day they are driving monstrous heavy equipment, and the next they are down on their hands and knees picking weeds out from tiny deer ferns in the New Zealand Forest. Sometimes they are supervising a group of hardy high school volunteers, battling the ever-present ivy, blackberry and horsetails. And some days the arborist is climbing into the tree canopy to prune away the hazardous limbs that might come down in a winter storm.

So, as I sit in my cozy office, safe from the winter rain coming down outside, I want to thank our crews for all they do here. The Arboretum is fortunate to have such dedicated crew members caring for it. ♡

Cheers,

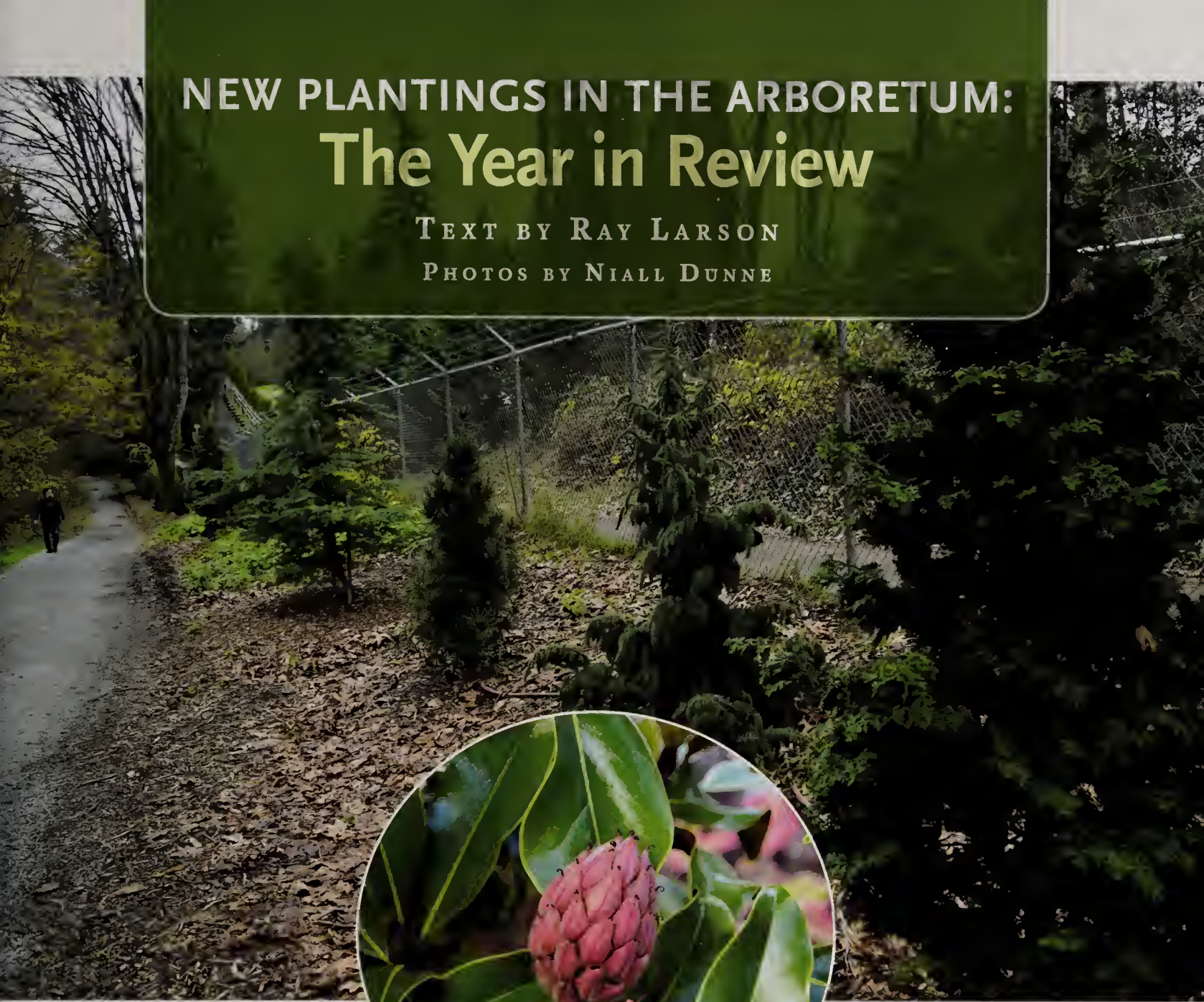
Paige Miller

Paige Miller, Executive Director,
Arboretum Foundation

NEW PLANTINGS IN THE ARBORETUM: The Year in Review

TEXT BY RAY LARSON

PHOTOS BY NIALL DUNNE



[Editor's note: Starting this year, Ray Larson will write an article in each winter "Bulletin," summarizing the changes made to the plant collections at Washington Park Arboretum.]

The past year has seen a lot of activity in the various areas of the UW Botanic Gardens, with the Arboretum seeing some of the larger changes. The Arboretum Loop Trail construction project began in earnest in April, and a lot of time has been spent planning for and mitigating those changes. But other projects, large and small, have also brought noticeable improvements.

The UW Botanic Gardens is continually planting new trees each year in the Arboretum.

For instance, from 2012 to 2014, we planted more trees than were removed as part of the Arboretum Loop Trail construction. This year, planting proceeded apace: In our two largest collection-enhancement projects alone, we planted a total of 48 new trees.

Conifers in the Holly Collection and Elsewhere

One of these projects was in the relocated Holly Collection. To more fully realize the design intent for this display, we planted 21 new deciduous conifers, creating a more dynamic and diverse backdrop for the collection. These

TOP: New narrow- and small-growing conifers planted along the Broadmoor fence line.

INSET: Developing fruit of a new *Magnolia grandiflora* 'Bracken's Brown Beauty' in the Graham Visitors Center terrace border.



included species and cultivars of dawn redwood (*Metasequoia glyptostroboides*), Japanese larch (*Larix kaempferi*), golden larch (*Pseudolarix amabilis*) and bald cypress (*Taxodium distichum*). The deciduous conifers were planted among existing trees and will provide a seasonally

changing setting to our nationally recognized holly collection.

The other major tree planting was adjacent to the Broadmoor fence line, from Crabapple Meadow to the Sorbus Collection, behind the old field nursery. Twenty-seven trees were planted in





formerly treeless areas between the service road and the fence. Species and cultivars of hinoki cypress (*Chamaecyparis obtusa*), Alaska cypress (*Cupressus nootkatensis*), Japanese umbrella-pine (*Sciadopitys verticillata*), Serbian spruce (*Picea omorika*) and mountain hemlock (*Tsuga mertensiana*) were added to expand our collection of narrow and smaller-growing conifers. In time, they should form an attractive screening for the chain link fence and the large concrete block wall behind Crabapple Meadow, as well as the fence line along the old field nursery.

In related news, the Arboretum was recently designated an official American Conifer Society

reference garden, owing to its diverse and mature display of conifers.

Visitor Center Enhancements

Elsewhere in the Arboretum, renovations and plantings continued, with several areas receiving facelifts or additions. The landscape around the Graham Visitors Center has been refreshed with new plantings in the parking lot islands, and at the north side of the building. The species planted are native to the areas of the world featured in the Pacific Connections Garden. In contrast to the design of the entry gardens in Pacific Connections, however, the beds at the Visitors

OPPOSITE TOP: New plantings of *Rhododendron* 'Yak Van Zile' and *Rhododendron degronianum* ssp. *yakushmanum* 'Koichiro Wanda' in the Graham Visitors Center terrace border.

OPPOSITE BOTTOM: Bog pine (*Halocarpus bidwillii*) in the New Zealand Forest.

ABOVE: Delavay's schefflera (*Schefflera delavayi*), from China, surrounded by mountain cabbage tree (*Cordyline indivisa*) and hebe (*Veronica gracillima*), from New Zealand, on the north end of the Graham Visitors Center.



Center feature plant species from the five regions intermingled with each other. We hope this provides visitors with further inspiration for how these species can work together in the Northwest landscape.

The south patio of the Visitors Center was renewed last year with plantings that offer more summer interest, including three new *Magnolia grandiflora* 'Bracken's Brown Beauty' that provide summer-long blooms and fragrance. Oakleaf hydrangeas and rhododendrons with interesting foliage were added to the understory on the south and west sides of the patio. The plants are now looking healthy and well-established, and the beds are filling in nicely.

Restoring the Camellia Collection

The Camellia Collection adjacent to the New Zealand Forest also received considerable attention. In recent decades, our historic display of camellias had become too shady and congested for proper bloom, and the pathways had become dark and ill-defined. This year, we removed several large evergreen trees, pruned others, and began pruning back many of the larger collection plants to provide more light and air to the garden. Several of our iconic *Stewartia* from the 1940s and 50s were made more visible or uncovered. We also removed some duplicate camellias to make way for new plantings. A generous donation from the Seattle Garden Club assisted with renovation, which will continue into the new year.

At the west end of the display, new plantings were made to provide a

LEFT: Fall color on a new dwarf bald cypress (*Taxodium distichum* 'Peve Minaret') in the Holly Collection.

better transition between the camellia area and the New Zealand Forest. The plantings here include a new addition to our camellia family (Theaceae) collection: a bigeneric hybrid between the hardy but somewhat-finicky Franklin tree (*Franklinia alatamaha*) and the tender but evergreen loblolly bay (*Gordonia lasianthus*). This tree, \times *Gordlinia grandiflora*, promises the better attributes of both parents.

At the east end of the Camellia Collection, where it transitions to our main display of hydrangeas, rhododendrons that had overgrown the historic pathway to Rhododendron Glen were limbed up and thinned out for better access and increased planting space. Recent donations by Dan Hinkley and Don Howe of several dozen hydrangea species and cultivars will add to the summer display in this area in coming years, and will also extend the blooming season within the larger camellia collection in the Arboretum.

New Zealand, the Lookout, and China

At the Lookout Gazebo—where the landscape had been somewhat bare since the recent renovation of the structure—new plants were added to create a transition from the view over Rhododendron Glen to the New Zealand Forest landscape. A planting of mostly New Zealand plants on the south and east side of the Lookout segues to a mixed display of dwarf conifers on the sunny bank north of the Lookout. Here, the emphasis is on texture, as well as on plants that will not obscure the view over the adjacent Glen rockery and Azalea Way. The new additions also have the benefit of being easy to weed around until they mature, as morning glory and horsetail have been an issue with previous plantings here. Our seasonal gardeners, Kelsey Taylor and Emily Martin, have greatly helped in these efforts.

In the New Zealand Forest itself, additional plants—including some species that are new to the collection—have been installed in areas where soil conditions and winter wet have been problematic. Seven specimens of ribbonwood (*Plagianthus regius*), one of New Zealand's few deciduous tree species, have been planted

where other plants have not previously thrived. They are somewhat reminiscent of birch in appearance and are fast-growing and tolerant of wet and heavy soils. They have taken well to these tough conditions and will allow the slower-growing southern beeches (*Nothofagus*) that comprise the backbone of the Forest to catch up and infill in time, while also soaking up some of the excess water.

For these soggy areas in the Forest, we have also acquired many *Halocarpus bidwillii*, or bog pine, which is a slow-growing conifer that appreciates poorly drained soils. The few specimens of bog pine that were planted in the original installation in 2013 have done very well and add a unique, cypress-like texture to the landscape. Other new plantings of *Pittosporum* species, hebe (*Veronica*) species, mountain wineberry (*Aristotelia fruticosa*) and tussock grasses have filled in some of the gaps in the original layout of the Forest, and overall it has grown in very well the last couple of years.

It has been a goal of mine to increase the diversity and aesthetic quality of each the five Pacific Connections entry gardens. The China Entry Garden saw the most changes this past year, with a new berm added to create drier planting conditions and bring some relief to the previously flat landscape. Plants including *Cautleya spicata* (a hardy, shade-loving ginger), hydrangea species and *Begonia emeiensis* were added to create a longer season of interest and better showcase the great diversity of temperate plants hailing from that region.

Other areas of the Arboretum continue to see new plantings and renovations. Stay tuned to the “Bulletin” for a discussion of these and other changes. In the meantime, I hope you enjoy some of the new plantings on your next visit. We look forward to seeing how they develop. ~

RAY LARSON is the Curator of Living Collections at the University of Washington Botanic Gardens. He was recently named curator of the Otis Douglas Hyde Herbarium, the Arboretum's herbarium housed in Merrill Hall.

A PHOTO ESSAY

BIRDS *in the* ARBORETUM

BELOW: This is one of a series of five photos that shows a Song Sparrow (foreground) looking for food right outside of the Arboretum's Graham Visitors Center. Suddenly a male Spotted Towhee (background) arrived, and both birds started to dispute (presumably about who should stay and who should not), first on the ground and then in the air. The sparrow decided to retreat from the larger towhee, and everything was resolved peacefully. After the towhee found some food and left, the sparrow returned and continued its foraging.



BY ANDRES DIAZ

I enjoy photographing wild animals as a way of learning about them. The more you observe these creatures, the more you realize how alike we are. They have similar basic needs, and each species fulfills those needs in different ways, according to its natural adaptations and skills.

I took these bird photos in Washington Park Arboretum in 2015 and early 2016. While taking the shots, I maintained a respectful distance from the birds, in order to capture some of their natural behaviors. I also stayed on designated paths while photographing—to help preserve the animals' natural environment.



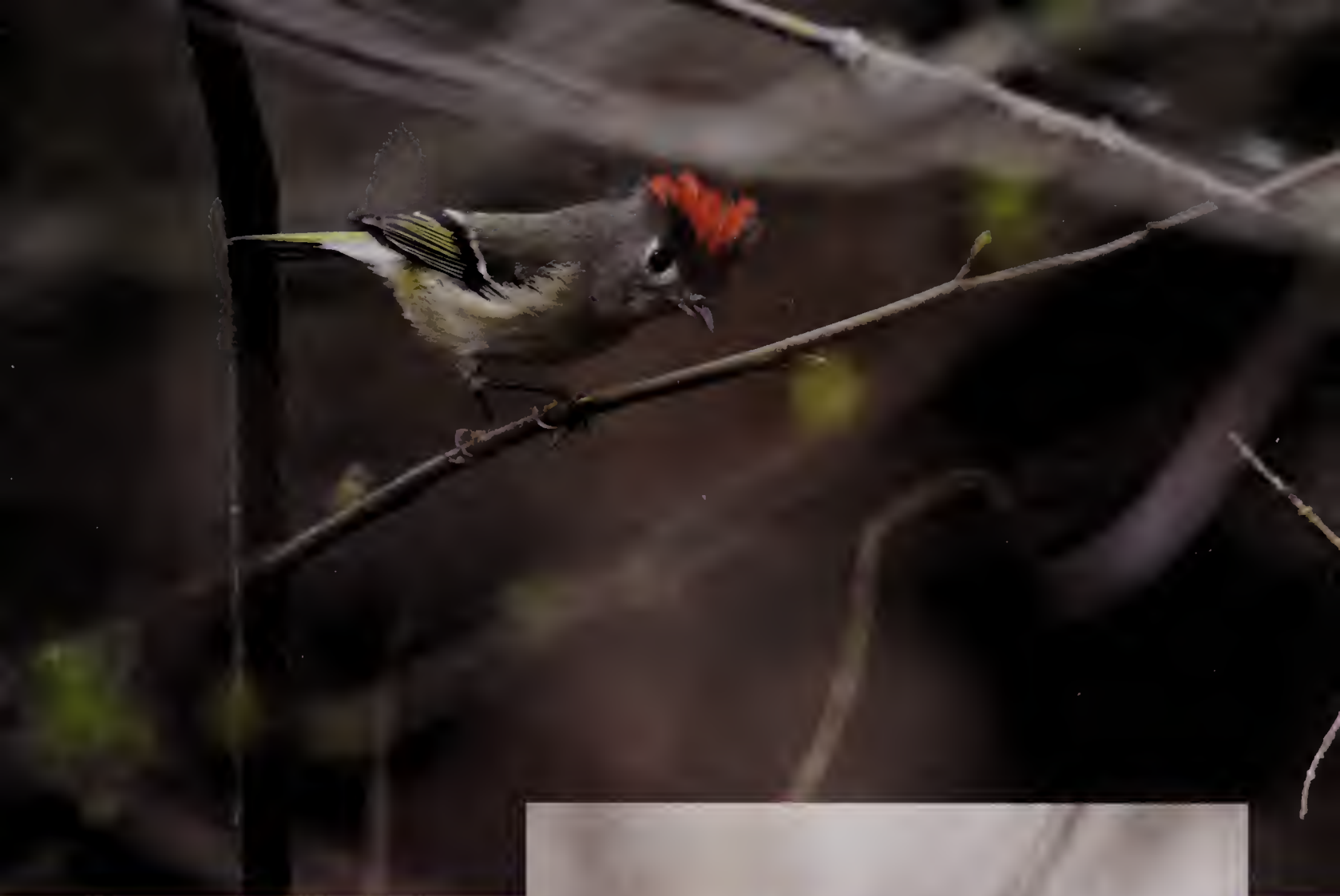
ABOVE: Four Common Mergansers in the wetlands. The male has a dark-green head, while the females have brown heads. The photo captures a momentary communication or disagreement between a female on the log and a female in the water.

LEFT: Bushtits, by weight, are one of the smallest birds in North America. I photographed this male on Foster Island.

BELOW: A juvenile Great Blue Heron catching a pumpkinseed sunfish in the Arboretum wetlands.







LEFT TOP: A female Gadwall and her reflection. Some visitors to the Arboretum will feed the ducks, but despite the visitors' good intentions, this may actually cause the birds harm. Wild animals know how to find their food in their natural habitat.

LEFT BOTTOM: A Bewick's Wren singing to attract a mate.

ABOVE: A male Ruby-Crowned Kinglet displaying his ruby-red crown feathers to attract a female, which was on a nearby branch. I took this photograph on Foster Island.



RIGHT TOP: A Yellow-Rumped Warbler resting on a branch for a few seconds. (Most of these photos were taken in cloudy weather.)

RIGHT BOTTOM: A Mallard mother with her ducklings in the wetlands.



ANDRES DIAZ has been a member of the Arboretum Foundation since the beginning of 2015. He works as a wedding, engagement, family and portrait photographer at www.GreatBluePhotos.com.

Hortus Botanicus of AMSTERDAM



BY WALT BUBELIS

Talk about a jam-packed botanic garden! Although just under three acres, Hortus Botanicus utilizes its space to the fullest, like so much else in Amsterdam. My wife, Dona, and I visited in August 2015, eager to see some greenery in this otherwise dense city. Even though it was

founded in 1638, the garden had a lively, contemporary air about it.

As you enter, your eye is immediately captured by giant water lilies from South America growing in a circular pond. Both *Victoria amazonica* and *V. cruziana*, a hardier species—plus a hybrid of the two—are on display. *Victoria amazonica* has been regularly blooming at Hortus Botanicus since 1859. The buoyant leaves of this plant can grow



up to six feet wide, and they have enough structural integrity to support the weight of a small child. (You'll find lots of photos of babies floating on *Victoria* leaves on the web!)

More than 4000 plant species are growing at the Hortus. Numerous marked paths meander



through the garden, often directing visitors to something special. Brochures with self-guided tours are available for free at the entrance. The "Tree Route" exhibit highlights 24 of the garden's most remarkable or rare trees.

I was transfixed by a giant Turkish hazelnut, *Corylus colurna*. Unlike its multi-trunked brethren, this pyramidal species is of truly majestic proportions, with some trees reaching 80 or more feet. (An impressive example in Seattle can be seen in the northeast corner of Volunteer Park. The species is also sometimes planted as a street tree in our city.)

Plant Relationships

Next to the lily pond is a large semicircular set of beds called the Halfround, or Systematic Garden. The plants in these beds are arranged according to their evolutionary relationships: Species that are closely related can be found growing near each other, while those that have little in common are grown far apart.

Parts of our Arboretum are laid out according to a kind of taxonomic design, however, the Systematic Garden at Hortus Botanicus is distinctive in that it categorizes plants according to the latest molecular studies. Relationships are determined by similarity of genetic material rather than, say, flower or leaf shape.

LEFT: The Systematic Garden at the Hortus displays evolutionary relationships between plants.

TOP RIGHT: Lizard's tail (*Saururus cernuus*), a handsome aquatic plant from eastern North America, growing in a pond near the Systematic Garden.

Each plant at the Hortus is labelled with its Dutch common name, the scientific name, and information about its natural distribution. More information about each plant is available on the “Garden Explorer” feature of the Hortus website, dehortus.gardenexplorer.org. The entire website, dehortus.nl, can be accessed in English.

Gorgeous Greenhouses

For those simply seeking some greenery or a refuge of quiet, there are choices inside and outdoors. A spectacular set of glass houses, designed by Dutch architects in 1993, immerse visitors in three different ecological zones: tropics, subtropics and desert. The plants represent areas of the world in which Holland has had economic interests in the past, including South America, South Africa and Indonesia.

Within the desert zone are numerous botanical treasures from South Africa and surrounding lands. My personal favorite was *Welwitschia mirabilis*, the sole member of its genus and a distant relative of ginkgo and cycads. Restricted to the Namibian desert of Angola and Namibia, this plant survives by absorbing condensation from fogs rolling in off the southern Atlantic Ocean.

It is one of the oddest plants you can encounter: Its two, strap-shaped leaves stretch out to 12 feet in length on opposite sides of a low-growing stem. And that’s all the plant produces for many decades. Slowly, it develops a central circular basin, which catches rare rainfall and also gives rise to bizarre flowering structures—small, colorful, stalked cones that look like canapés sitting atop erect toothpicks. Large mounds of intertwined *Welwitschia* leaves have been estimated to live for over 1000 years.

More familiar plants in the desert/arid zone include scented geraniums (*Pelargonium*), *Agapanthus*, *Clivia*, *Gerbera*, and a host of aloes—some of which rise up to 15 feet, such as the erect, branching quiver tree (*Aloe dichotoma*).

A Special Cycad

More indoor wonders abound in the Palm House, a historic landmark built in 1912. Besides numerous palm species, it features a large collection

of cycads, a plant group that is highly endangered and under worldwide protection. Hortus Botanicus works on preservation efforts with the Stellenbosch University botanic garden in South Africa, where many of these plants originate.

A highlight for many garden visitors, including us, is seeing the oldest potted plant in the world—a 300-plus-year-old Eastern Cape giant cycad (*Encephalartos altensteinii*). Dutch collectors brought it up from South Africa in the early 18th century. The Hortus purchased the cycad in 1850 from the collection of the then recently deceased King William II.

Yearly, pollen is collected from this male cycad to pollinate the mere 200-year-old female across the path. The resulting seeds are distributed worldwide to other botanic gardens.

Educational Emphasis

A great emphasis is put on education throughout the garden. Visitors of all ages enjoy the Butterfly Greenhouse and simultaneously learn about the varied interactions between insects and plants. A rich set of carnivorous plants (planted both indoors and outdoors) continues this theme, as does a beehive exhibit. Both the domestic honey bee and wild bees are given homes here. Two to three times a year, honey is extracted and eventually sold in the Hortus store. One of their featured nectar-rich species on site is the southern United States tupelo or black gum (*Nyssa sylvatica*). Dona and I can attest to the unique sweetness of this particular honey, having purchased some from Mississippi last year.

The educational theme continues with displays of economically important plants, including those used for medicine, food, pigments, fiber, oils and more. The Hortus played a key role in the spread of coffee cultivation. The Dutch were responsible for shipping the first living coffee plants (*Coffea arabica*) from Arabia to Batavia, now Jakarta, in the Dutch East Indies in 1696. In 1704, not long after coffee was established in the Far East, the Hortus received a batch of coffee seeds from Batavia and propagated coffee in its greenhouses. In 1714, a few of these plants were given to the French king Louis

XIV as gifts. The French cultivated the plants and, about a decade later, took them to their colonies in the New World, which eventually became the global center for coffee production.

While at the Hortus, Dona and I felt lucky to have caught an exhibit commemorating the 200th anniversary of the horticultural works of Joséphine de Beauharnais, the first wife of Napoleon Bonaparte. For over 15 years, until her death in 1814, she created the botanical collection outside Paris known as Malmaison. So well regarded were her activities that, during the Napoleonic War, the British allowed free passage through their blockade of any ship carrying plants destined for her garden. The exhibit contained examples of plants—such as roses, dahlias and South African lilies—that she had introduced into cultivation in Europe. Joséphine also commissioned Pierre-Joseph Redouté to make engravings and watercolors of her collection, including her collection of 150 roses.

Hortus Botanicus is as new as it is old. Along with more recent exhibits on ecology and


conservation, it retains its original emphasis upon medicinal and food plants. To engage the public, there are tours and programs for all ages. There is even a plant doctor to help diagnose sick plants. (You're welcome to bring in a patient—or a piece of one—from home during consultation hours.)

Despite having an extensive library of rare books and reference works, an index seminum (i.e. list of seeds) for sharing seed with other botanic gardens, and partnerships in tropical ecology and plant biology with the University of Amsterdam, the garden almost ceased to exist in 1986, when the University pulled its funding. Community activism stepped to the fore so that the City Council now helps support the garden. It's a sobering reminder that the critical role plants play in our lives must continually be brought forth to new generations. ~

WALT BUBELIS is a professor emeritus in the Horticulture Department at Edmonds Community College. He is also a member of the "Bulletin" Editorial Board.

Giant water lilies (*Victoria* species) from South America growing in a pond near the entrance to Hortus Botanicus.





Hidden Treasures of the Arboretum

'Collyer's Gold'

Western Red Cedar

TEXT AND PHOTOS BY DANIEL MOUNT

Our native western red cedar (*Thuja plicata*) is a strong and very visible component of the Washington Park Arboretum. University of Washington Botanic Gardens Curator of Living Collections Ray Larson reports that there are well over 500 naturally occurring cedars growing here today. Most of these are remnants from the original forest that covered the land and were too small for harvest when logging took place in the 1880s and 1890s.

Ray estimates that today's cedars are mostly in the 90- to 100-year range, but he believes a few might be upwards of 130 years old. Though impressive for the city, our cedars are mere infants compared to the old-growth trees you'll find in the Olympic National Forest. (A popular one to visit was the 1000-year-old tree that grew at Lake Quinault; unfortunately, this 174-foot giant toppled in 2016.)

Thuja plicata, sometimes called giant arborvitae, is the largest of the five species in the *Thuja*

genus, all of which hail from either Eastern Asia or North America. *Thuja occidentalis*, the eastern arborvitae, comes from the northeastern region of this continent and has many dwarf and compact cultivars. These selections are so ubiquitously grown that they overshadow our native red cedar in the nursery trade, despite the fact that they are not always ideal choices for our gardens. (Eastern arborvitae doesn't like our dry summers and needs irrigation to do well here.)

When we look at the large western red cedars of the Olympic Peninsula—and the big ones in the Arboretum's native matrix—most of us hardly think of garden worthiness. The tree's massive gracefulness inspires awe but hardly acquisitiveness, and anyone who has gardened under one knows the pitfalls of trying to grow anything among its dense, shallow and fibrous roots. However, as with its eastern cousin, the western red cedar now comes in many smaller forms that are just right for the average or small home garden.



The Arboretum has always been interested in showcasing cultivars of our native trees with ornamental value. Ten such cultivars of *T. plicata* grow in the collections. The dwarf globose form ‘Gruene Kugel’ and the bizarrely beautiful ‘Whipcord’ are both quite common in Northwest gardens these days. ‘Collyer’s Gold’—an especially handsome plant to this writer’s eye—is less often seen. But we have a fine specimen in the Arboretum, easily found in the Flats section, just west of Azalea Way and immediately to the south of the Forsythia collection. (Find the park bench dedicated to Rudy Monosmith on the east side of Azalea Way, and you know you’re in the right area.)

Brian Mulligan brought this tree back in 1983 from Kevin Lawrence Nurseries in Surrey, England. It is the only *T. plicata* in our collection from a foreign source, but this cultivar is now readily available from some nearby nurseries. (An online source is Forest Farm, in Williams, Oregon; www.forestfarm.com).

The Arboretum’s specimen was an 11-inch whip when it arrived in 1983. Nine years later,



when it was planted in its current location, it was three feet tall and had an inch-wide trunk caliper. Today, the plant is a rotund but tidy 15 feet tall.

Admired by nursery people both here and abroad, ‘Collyer’s Gold’ is a slow-growing conifer with a tight, conical habit. It sports golden-green foliage (leaves on younger plants are more distinctly yellow), which can take on orange hues in winter. The Arboretum’s specimen grows happily in the heavy, wet soils of the Flats, which recommends it for gardeners plagued with soggy ground. (A plant I purchased for my own garden in the alluvial floodplain of the Snoqualmie Valley is totally happy.)

No native tree species is more culturally important to the indigenous peoples of the Pacific Northwest than the western red cedar. Likewise, few trees can top the economic importance of red cedar among European settlers, who felled countless acres of it for lumber—including on the land that eventually became the Arboretum. Strangely, this icon of our forests has failed to win over many in the horticultural community. Yet one look at ‘Collyer’s Gold’, and that may begin to change. ∞

DANIEL MOUNT is an estate gardener, garden writer and member of the “Bulletin” Editorial Board. He lives on a small farm in the Snoqualmie Valley. Read more of his reflections on plants and gardening at www.mountgardens.com.

NATURE *for* HUMAN HEALTH *and* WELLNESS

BY KATHLEEN L. WOLF

The Pacific Northwest region is one of the fastest growing urban areas in the nation. As the population grows it is ever more important to effectively enhance and steward our urban natural resources. Parks, natural areas, and the trees of the urban forest provide essential environmental services, such as improved air quality and storm water management. What's more, literally thousands of studies provide compelling evidence that nature experiences are the source of extensive human health, social and psychological benefits.

Direct experiences of nature are needed for quality human habitat, and are profoundly important for health of mind and body. We created the "Green Cities: Good Health" website (<http://www.greenhealth.washington.edu>) at the University of Washington (with funding from the USDA Forest Service) to share this knowledge. The site summarizes a collection of nearly 4000 peer-reviewed science articles that report nature and health connections.

We live in an age when human health challenges are on the increase. Traditional medical remedies involve huge public and personal costs. Public health agencies now seek preventative health solutions, and nearby nature and landscapes are increasingly recognized as opportunities for health promotion and disease prevention.

Below you will find a summary of the current research about the health benefits of nature experiences in urban areas. What does this mean for how we plan and use our urban green spaces? Later, I offer some interpretations,



Visitors enjoying the Witt Winter Garden and Azalea Way (inset) at Washington Park Arboretum. (Photos by Niall Durno)

ideas that can make our natural areas more people-friendly and our people-oriented parks more nature-rich.

EVIDENCE OF NEARBY NATURE AND HEALTH

Active Living—Over the last 30 years, adult obesity has doubled in the U.S., and childhood obesity has more than tripled. The U.S. Centers for Disease Control (CDC) recommends weekly moderate-level physical activity to reduce health risks from obesity and chronic disease. Improving the walkability of neighborhoods and increasing recreation access promotes better health for people of all ages. In one study, in Tokyo, Japan, elderly people who had nearby parks, tree-lined streets, and space for taking walks showed higher longevity over the five-year study period.



Generally, studies show that adults and children prefer to visit and spend time in appealing places—those that are safe and include certain physical features, such as natural elements, good upkeep, unobstructed vistas, sidewalks and seating.

Stress Reduction—Stress is a leading contributor to chronic disease for people of all ages, and can trigger illnesses that lead to a shorter life. Early medical research on stress focused on the abrupt, infrequent changes that happen in life, such as death of a loved one or divorce. More recent research shows that low-grade, ever-present stressors, such as commuting and job pressures, initiate body responses that can lead to reduced immune function and a cascade of diseases. Chronic stress, with little opportunity



for recovery, can lead to unhealthy levels of psychological and physiological reaction.

Exposure to nearby nature has been shown to effectively reduce stress, particularly if initial stress levels are high. Stress recovery from nature encounters can happen in a matter of minutes, including improved measures of blood pressure and heart rate. Having nature near one's home is important. People exhibit lower stress levels with more frequent visits to green spaces, and if their visits are longer.

Mental Health and Function—Time spent within nature contributes to better mental health and improves one's capacity to be productive. Modern life often demands sustained focus on tasks,

and this effort can lead to cognitive overload, bringing on irritability, inability to function effectively, and physical decline. Brief experiences with—or even just views of—nearby nature help to restore the mind from mental fatigue. Mental restoration is gained from spending time in an urban green space, and longer visits improve the restorative effect. Improved attention effects have been found in college and high school students, children diagnosed with ADHD, and desk workers.

Walking in green settings within cities is also associated with reduced depression. One study, carried out by Stanford University researchers, found that a 90-minute walk in a natural setting decreased self-reported “rumination” (a pattern of negative thinking about one’s circumstances that heightens risk for depression and other mental illnesses) and indicators of brain activity that mark sadness and behavioral withdrawal. In contrast, a walk in a more “built” setting did not show positive effects. Providing well-marked trails and benches within parks and natural areas welcomes users and helps facilitate these mental and other health benefits.

Healing and Therapy—Nature experiences are also linked to healing and treatment of emotional and physical disabilities. Hospital patients with views of nature display less pain and have shorter hospitalizations, less anxiety, and higher hospital and room satisfaction. Guided participation in nature activities, such as horticulture therapy, is now regularly used in rehabilitation programs.

Nature-assisted therapies are gaining attention to supplement clinical and pharmaceutical treatments. Based on a decade of research in Japan showing the benefits of *Shinrin-yoku*, or forest bathing, cities are setting up forest therapy bases, and some are supported by medical clinics that provide check-ups. A variety of organizations offer outdoor experience programs for veterans to help them cope with PTSD. And several studies have found that elders with dementia and Alzheimers disease are less agitated, less depressed, and require fewer medications when they have access to a therapy garden.

Social Cohesion—Humans are a very social species! Many studies point to the importance of social linkages within a community to maintain the health of individuals and support community vitality. Social cohesion is formed by both casual and intentional interaction with other people, building interpersonal relationships and resulting supportive networks. The social capital that takes shape is a critical condition for a host of community benefits, and contributes to the development of resilient communities.

The presence of parks, green spaces or trees sets up environments where people can engage and interact. Views of green space are linked to greater perceptions of well-being, neighborhood satisfaction, and a greater sense of safety. Active participation in community greening and citizen science programs provides opportunities to develop social connections. Community greening programs, including vacant lot cleanup or shared community garden plots, are associated with reduced crime.

NATURE PLANNING AND DESIGN FOR HEALTH

Research from the social sciences, as well as widely recognized design practices, suggest how certain spatial arrangements in the outdoors can maximize human health and wellness. Here are some ideas:

Neighborhood Walkability—Natural areas and green spaces can serve as linkages that make a community more walkable. Two conditions are important: proximity and connectivity. Proximity refers to distances to and between one’s spatial goals, and connectivity refers to the ease of continuous movement from starting point to destination. Having green spaces or parks near every home is important; the CDC recommends no further than one-quarter mile. Connectivity involves the physical linkages that enable walkers to get to destinations (such as a store, transit station, work or school), as well as a series of spaces and routes that enable recreational walkers to move adequate distances in a safe way. Neighborhoods can do walkability assessments that trace walking opportunities and obstacles,

and that look at how parks and green space could support an active living network.

Plant Selection and Placement—Within parks and open spaces, managers may create new plantings or restore existing vegetation. The goals for these improvements often range from aesthetics to environmental services; health outcomes could be added to the list. Depending on location and potential users, design can be deployed to reduce a specific health risk (skin cancer, obesity, asthma), encourage general wellness (such as reduced blood pressure, heart rate, and stress), or accomplish specific social or psychological objectives (improved cognition, sacred respite, greater social cohesion).

One possible goal could be to reduce asthma and other respiratory disorders. Plant selection and the location of plantings can make a difference. Some trees produce pollen that can trigger allergies and should be avoided near residential areas; alder is one example here in the Northwest. Of greater concern are the clouds of fine, invisible particulates that are produced by traffic and can cause respiratory irritation. Some communities are planting forest “green screens” along major roads to help trap the pollution. The Nature Conservancy’s recent “Planting Healthy Air” report provides other guidelines. (You can download it at <https://global.nature.org/content/healthyair>.)

Welcoming Spaces—At the most basic level, health benefits are the result of people being outdoors and enjoying nature experiences. Urban and restoration ecologists now understand that remarkably complex ecosystems can be sustained in cities. However, some highly functional natural systems or naturalistic landscapes may appear “messy” to the casual observer and are often unappreciated. The public may even regard natural landscapes as untended, neglected, or even intimidating. But several principles adapted from environmental psychology can help boost the perception of these landscapes as amenities and help people feel more comfortable in them.

First, naturalistic landscapes can be framed using so-called “cues to care.” Simple devices—familiar to many wildlife gardeners—such as a rudimentary fence, a mown edge, or a more tidy ornamental plant border indicate that an ecological planting is an intended management approach, rather than a neglected space. Such treatments can signal to a visitor that the green space is intended for public use and enjoyment.

Making Sense of It All—Second, we can design our natural landscapes to be more coherent. Landscape coherence is the notion that a space has an internal physical and visual connectedness and general predictability. There is a sense of relatedness across the elements within, suggested by repeated features or patterns, symmetries, or a series of focal points. Land and park managers can make places more coherent by using physical orientation aids, such as hierarchical trail systems and interpretive signage. A place that is coherent is innately understandable and holds a promise of easy wayfinding.

The degree of complexity in the landscape also is important. Complexity is the information richness of a space and influences our ability to understand it. This applies to literal, physical places as well as virtual spaces, such as websites. If a place has low visual complexity and is too readily understood, we find it boring. If a setting is too complex, we may find it uncomfortable or unwelcoming. High complexity, particularly when caused by multiple sensory inputs—busy visuals, too much noise, and confusing layouts—can be the cause of immediate frustration and agitation, and possibly longer-term stress and anxiety.

Mid-level complexity is often the most appealing, offering just the right amount of information to satisfy the desire to understand a place, as well as opportunities to uncover more information and engage in more experiences should we move further into it.

CO-DESIGN FOR CO-BENEFITS

As the Northwest population expands, there is an ever-growing need for people to have access

to the outdoors. And the health research shows that frequent, short-term experiences of nearby nature are essential. Yet, the acquisition of new land for parks or natural areas is difficult, often because the land is not available or the price is prohibitive.

A new strategy of land management is emerging that may help address these challenges. While traditional policies have often treated a green space either exclusively as a natural area or a people-oriented park, new programs focus on both maintaining naturalness and providing a satisfying nature encounter for people. This more integrated approach looks to optimize the co-benefits of ecosystems for plants, wildlife, and humans alike. A good local example is the recent creation of an ecologically sensitive raised boardwalk in Yesler Swamp at the University of Washington, which has made the enjoyment of this freshwater ecosystem more accessible to people, while helping reduce disturbance of native plantings and wildlife.

People-parks can be designed to contain more native plant communities, providing

habitat for wildlife and connecting city residents to their natural heritage. At the same time, urban natural areas can be designed or restored to be more welcoming and engaging to visitors and users. These activities generate many benefits, and this article outlines the necessity of considering human health, and how to create the places that encourage outdoor experiences. ~

Acknowledgements

Writing support was provided by the USDA Forest Service, Pacific Northwest Research Station. This article is dedicated to Dr. Sarah Reichard, whose career spanned a thoughtful balance of ecological and horticultural landscapes.

DR. KATHLEEN WOLF is a research social scientist with the University of Washington, School of Environmental and Forest Sciences, and a research associate with the US Forest Service Pacific Northwest Research Station. Information about her work is at: <http://www.naturewithin.info/>



A Benefit for
Washington Park Arboretum
at the Northwest Flower & Garden Show

Tuesday, February 21
5:00 to 9:30 p.m.
Washington State Convention Center

Be the first to see the Garden Show's exceptional displays! Our party is inspired by hanami, the lively Japanese picnic celebration of cherry blossom viewing.

Tickets at
www.arboretumfoundation.org
or 206-325-4510.

**OPENING NIGHT
PARTY & AUCTION**
Hanami 花見 – Savoring Spring

Q&A from the Miller Library's Plant Answer Line

Am I Blue? Tracing the Sources of Indigo

BY REBECCA ALEXANDER

This regular column features Q&A selected and adapted from the Elisabeth C. Miller Library's Plant Answer Line program. If you'd like to ask a plant or gardening question of your own, please call (206) 897-5268 (UW Plant), send it via the library website (www.millerlibrary.org), or email directly to hortlib@uw.edu.

QUESTION: I recently saw an exhibit about indigo dye at the Seattle Asian Art Museum. My assumption was that indigo came from plants in the *Indigofera* genus, but the only two species mentioned by their botanical names were *Persicaria tinctoria* and *Polygonum tinctorium*. I can see the "tint" potential in those species names, but what's the real story? And are there plants that can be grown here and used to produce that intense blue color? Are there any established dye gardens in our area?

ANSWER: It's true that *Indigofera* is used to make indigo dye, but it is just one potential source. *Indigofera tinctoria* is a native of Southeast Asia, and *Indigofera suffruticosa* is native to the subtropical and tropical parts of the Americas. In her book "A

Dyer's Garden," Rita Buchanan recommends the latter, which is "tender, grown as an annual [in] fertile, well-drained soil with regular watering." It needs hot weather. The leaves are the pigment source, and the pigment is most intense when the plants are flowering, so leaves are harvested from late summer to fall. (Generally, one-third of the leaves are picked at two-week intervals.) The leaves need to be used right after harvesting.

The names you saw at the exhibit (*Polygonum* and *Persicaria*) are synonyms of the same species. *Persicaria tinctoria* is now considered to be the accepted name. Native to Asia and Eastern Europe, this frost-tender annual has been used as a source of indigo dye for centuries. Common names include smartweed and dyer's knotweed, and as you might guess from these, *P. tinctoria* is tough and easy to grow. In the book "Natural Dyes from Northwest Plants," Judy Green writes that smartweed foliage steeped in warm water produces a light gold color, rather than a blue one. The indigo pigment results from an additional fermentation process.

Isatis tinctoria, or dyer's woad, is another source of blue dye. According to "Wild Color," by Jenny Dean, woad was used in Europe for this purpose until indigo (from *Indigofera*) became available in the 16th century. After the 19th century, woad was seldom used as a dye plant, and in North America, where it has naturalized,



Persicaria tinctoria growing at the Local Color Fiber Studio, on Bainbridge Island. (Photo by Emily Tzeng)

there have been attempts to eradicate it from the wild. It is on the Washington State Noxious Weed Control Board's Quarantine List. Evidently the plant thrives here, but it would be a bad idea to grow it in a Pacific Northwest dye garden.

Other sources for blue pigment include Assam indigo (*Strobilanthes cusia*), a shrub from Southeast Asia in the Acanthaceae family with tubular pink flowers, and the Yoruba indigo vine (*Philenoptera cyanescens*), a leguminous shrub and climbing vine from Africa.

Blue dyes can be derived from plants with blue berries, such as our native salal (*Gaultheria shallon*). However, most berries produce a fugitive dye, which is not practical for dyeing yarn and other textiles. When the antioxidants in the berries are exposed to air, the dye becomes less potent.

Kind of Blue

Some plants have been used to provide a near-blue color, such as the bloodwood tree (*Haematoxylum campechianum*) from southern

Cultivating Color: Insights from a Local Dye Farmer



Emily Tzeng of Local Color Fiber Studio (<https://localcolorfiberstudio.squarespace.com/home/>), on Bainbridge Island, found her way into farming dye plants and dyeing yarn through her background in vegetable production and her love of knitting. For indigo, she plants an annual crop of smartweed, *Persicaria tinctoria*. For other colors, she grows marigolds, *Rudbeckia*, and madder (*Rubia tinctorum*). She also forages for nettle and sumac. Emily says that the dye plants she grows are a great draw for pollinators and aid the vegetables growing in the area—and that they don't require heavy nutrients.

There are economic challenges right now to growing dye plants as agricultural crops. Emily says, "It is hard to secure land that can be leased for many years at a time. Also, the process of making dye from plants takes a lot of time and labor, and natural dye is still a niche product. It's hard to scale up and make it more efficient."

Following is a breakdown of the tasks Emily's completes each year to raise and process her crop of smartweed:

- Sow seeds indoors in flats in late February. (Germination can be somewhat erratic.)
- Plant seedlings out in mid-April after the danger of frost is past.
- Till composted manure from the resident sheep into the soil, and plant the crop about one per square foot. Lay out drip irrigation. (Indigo plants like moisture.)
- In mid- to late-July, when bushy, test the plants for pigment by freezing leaf samples. If the samples turn navy blue, this indicates that they hold enough pigment and may be harvested.
- One plant yields about a pound of bundled leaf material. Cut down each entire plant and create bundles of five to six plants.
- Deeply submerge the bundles in a stockpond with 300 gallons of water. (This is done inside a greenhouse to maximize warmth, which speeds the fermentation process. If it is hot, this can take five days, but if cooler may take up to two weeks.) Fermentation is complete when the water turns yellow-green and has a coppery sheen on top.
- Remove plants and put them on compost pile.
- Add agricultural lime or calcium hydroxide to the water to raise the pH.
- Use an aerating pump to bind the indigo with oxygen: A blue sludge settles to the bottom of the tank. Siphon off wastewater and collect the indigo. Allow it dry out into cakes. It may then be ground into powder.

Mexico and Central America. According to Jenny Dean, blocks of heartwood (weighing hundreds of pounds) from this tree were imported to Europe beginning in the 16th century. Woodchips were used to obtain a kind of bluish-purple or black. Until a technique for fixing the color was learned, however, the dye had a tendency to fade and remained relatively unpopular. It eventually fell out of use in the 20th century.

Of course, non-plant dye sources have also been used throughout history. The blue called “tekhelet” in the Hebrew Bible (a shade still used in prayer shawls) ranged from sky blue to deep blue or dark violet, and was made from the secretions of *Murex trunculus*, a sea snail. The color is also referred to as Tyrian purple.

Synthetic Versus Natural Blue

Since the late 19th century, the dominant source of indigo dye has been synthetic. The familiar initials BASF may conjure up old cassette tapes and Zyklon B, but the German chemical company’s full name means Baden Aniline and Soda Factory, reflecting its discovery that the organic compound aniline could be used as a precursor in the synthetic production of indigo. The chemically synthesized dye brought about the demise of plant-based indigo production in India. In 1997, BASF marked a century of making blue jeans blue.

Seattle artist Donald Fels, writing for “Crosscut” in 2015, describes how synthetic dyes have played a role in the pollution of the Spokane River. A paper mill that thought it was doing the “green” thing by recycling paper was inadvertently flushing PCBs (polychlorinated biphenyls) into the river. It turns out that the dye originally used in the manufacture of the paper—phthalo blue, a widely used synthetic blue pigment developed in the 1930s—can contain PCBs. Fels reports that the mill has installed equipment to treat and remove the PCBs from its effluent, but that these persistent and dangerous chemicals are still escaping into the environment, where they can be absorbed by fish in the river, and, in turn, by those who eat the fish.

Growing awareness of the potential hazards that chemical pigments pose to human and

environmental health may be one reason for the current resurgence of interest in plants as dye sources. In 2014, students at New York’s Fashion Institute of Technology created a rooftop natural-dye garden to raise awareness of the environmental costs of global textile production, and to provide an alternative to these unsustainable practices.

On Bainbridge Island, Emily Tzeng of Local Color Fiber Studio maintains a sizeable dye garden for hand-dyeing yarn and fiber (see sidebar). In Port Ludlow, artist Amelia Gallipoli grows dye plants in the Bellwether Garden. If you have space in your own garden for dye plants, you can experiment with some of the non-weedy species described in the books cited above. ~

REBECCA ALEXANDER is the Plant Answer Line librarian at the Miller Library, located in the UW Botanic Gardens’ Center for Urban Horticulture (3501 NE 41st Street, Seattle). She is also a contributing editor to the “Bulletin.”

Bibliography

- Arsenault, Natalie. “Explorers, traders & immigrants: tracking the cultural and social impacts of the global commodity trade.” Austin, TX: Hemispheres/University of Texas, 2008: http://liberalarts.utexas.edu/hemispheres/_files/pdf/eti/Indigo.pdf.
- Arthur, Allison. “A to-dye-for garden in Port Ludlow.” “PT Leader,” September 11, 2013.
- Buchanan, Rita. “A Dyer’s Garden.” Loveland, CO: Interweave Press, 1995.
- Dean, Jenny. “Wild color.” New York: Watson-Guptill Publications, 2010.
- DiTomaso, Joseph M. and Healy, Evelyn A. “Weeds of California and Other Western States,” Volume 1. University of California, 2007.
- Feaser, Andrea. “Red, white, and black make blue: indigo in the fabric of colonial South Carolina life.” Athens, GA: University of Georgia Press, 2013.
- Fels, Donald. “Dangerous colors and the poisoning of the Spokane River.” “Crosscut,” October 10, 2015: <http://crosscut.com/2015/10/dangerous-colors-and-the-poisoning-of-the-spokane-river/>.
- Green, Judy. “Natural Dyes from Northwest Plants.” McMinnville, OR: Robin and Russ Handweavers, 1975.
- Ngo, Robin. “What color was Tekhelet.” Biblical Archaeology Society’s website, “Bible History Daily,” September 11, 2013: <http://www.biblicalarchaeology.org/daily/ancient-cultures/what-color-was-tekhelet/>.
- Urrabazo, Yolanda. “Planting the seeds for sustainable fashion.” “FIT Alumni” blog, April 22, 2014: <http://blog.fitnyc.edu/alumni/2014/04/22/planting-the-seeds-for-sustainable-fashion/>.

New Books *for* Pacific Northwest Gardeners

BY BRIAN R. THOMPSON

Outstanding Garden

Twice in the early aughts, I participated in garden tours to the greater San Francisco area—once in April and once in September. A highlight of both tours was the Ruth Bancroft Garden in Walnut Creek, California. I was delighted to learn recently of a new book capturing and celebrating this garden, and to learn that Ms. Bancroft (whom our group met briefly at age 94) is still with us at 108!

This garden has two distinct personalities, reflecting different periods of its creator's gardening interests. In her childhood, Bancroft was introduced to bearded iris by neighbors who were experts on these plants. When she got her own house, she developed a huge selection of historical cultivars, which were just finishing their bloom during my spring visit. Bancroft carefully maintains the plants by following a schedule of digging up one-third of the collection every year to divide and replant. The health of the collection reflected this high level of care.

As an adult, Bancroft became fascinated with succulent plants. Initially this was a collection of small, potted plants maintained near her home. In the 1970s, her husband's removal of a diseased walnut orchard provided three empty acres on their property. Despite losing much of her succulent collection to a freak freeze shortly after planting the garden out, she never looked back.

The results are sublime, and I would highly recommend a visit to this garden anytime you are in the area. However, if that's not in the offing, I



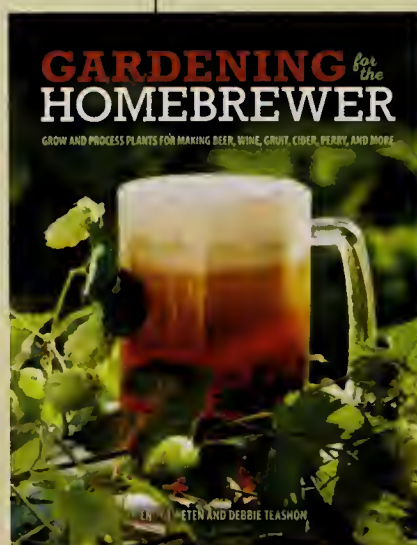
also highly recommend "The Bold Dry Garden: Lessons from the Ruth Bancroft Garden," written by Johanna Silver, with photographs—many gorgeous photographs—by Marion Brenner.

This book would happily grace any coffee table, but ideally it will

be read and cherished and studied. Indeed, the "signature plants" chapter could be a stand-alone book on succulents. If the plants are not of interest to you, then read this book for the story of Ruth Bancroft.

At age 63, she started her succulent garden, an untested concept in her climate at the time. She began with plants in gallon-size pots or smaller. At 83 she opened the now-maturing succulent garden to the public and continued working in it, daily, well into her nineties. Hers is a story to keep all of us gardeners going when we're bothered by a few aches and pains!

Unusual Uses for Your Garden



A photograph of a frosty mug of golden ale, surrounded by hop vines and fruit, graces the cover of "Gardening for the Homebrewer." I was immediately intrigued, especially when I learned that authors Wendy Tweten and Debbie Teashon live on the Kitsap Peninsula.

I expected this book to highlight garden-grown additives for your home-brewed

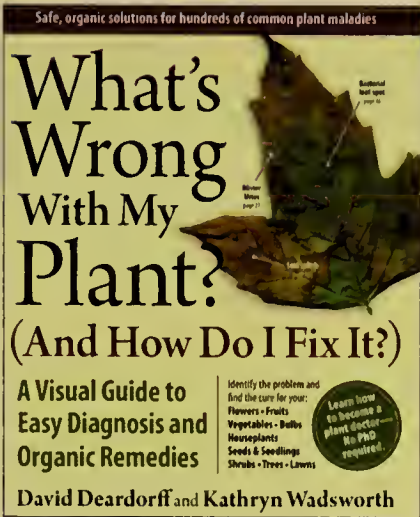
beer, but it does much more than that, advocating growing your own hops—and even your own barley—all in Western Washington! According to the enthusiastic authors, there’s also no reason not to grow your own pumpkins for “Pumpkin Ale” or experiment with varying mixtures of herbs, other grains, or perhaps hot peppers or spruce needles to make a brew that is distinctly your own.

Once you master these techniques, move on to making your own wine (using grapes or other fruit), cider, or perry (pear-based cider). Each chapter helps with the plant culture, preferred varieties, terminology, the techniques of harvest, curing, and fermentation, and necessary or recommended additives and equipment. A final chapter explores liqueurs with the same enthusiasm found throughout the book: “... chances are if you can grow and eat it, you can turn it into a liqueur.” What are you waiting for?

Jeffrey Bale describes “The Gardens of Jeffrey Bale” as his first step in writing the book others have urged him to write. He started with the photographs, which seems appropriate for an artist who creates pathways, steps, walls, and other landscape features using stones and mosaic pebbles. Most images have captions, sometimes extended captions, but this is primarily a photo album of his numerous projects throughout the Pacific Northwest.

He begins with projects for his own house in Eugene, Oregon, where the garden hardscape is a shrine to many spiritual traditions. He describes how “lounging in the garden on dry days is a foretaste of heaven.”

While most of his work is in Oregon, visitors to the Windcliff Garden of Dan Hinkley and Robert Jones near Indianola, Washington will see his fine work in a fire pit and surrounding terrace. He also built a mosaic over a cistern at Islandwood School on Bainbridge Island, with help from area school children.



Garden Culture

“What’s Wrong with my Plant?” is a very unusual book. The first half is a diagnostic flow chart, with many either/or examples of plant problems, effectively illustrated with colored line drawings. Depending on your answer to the first question, you turn to another page for

more questions to help you focus in on the exact problem. It’s somewhat similar to a taxonomic key for identifying plants.

Once you have reached the end of your investigative journey, you are directed to the relevant section in the second half of the book for a more conventional description of plant problems, including pests and diseases and close-up photographs to confirm your results.

Authors David Deardorff and Kathryn Wadsworth live in Port Townsend and tested their charts with the help of local Master Gardeners. While the book is intended for a broader audience, I think local gardeners will find it particularly relevant.

I reviewed the first book by Colin McCrate and Brad Halm, “Food Grown Right, in Your Backyard,” in the Winter 2013 issue of the “Bulletin.” This reflected their efforts as the founders of The Seattle Urban Farm Company to encourage people to grow food, no matter what their limitations of space or experience.

The authors’ second book, “High-Yield Vegetable Gardening,” addresses a more experienced audience—gardeners who want the maximum yield from their space, no matter how large or small. Their ideas would work throughout most of North America, although here and there the book reminds you of its Seattle roots, to the benefit of local readers.

McCrane and Halm have selected real examples (with pseudonyms for the owners) of



gardens of varying sizes in urban, suburban and rural settings, and they use these as examples effectively throughout. You'll want to keep this book handy and use it for notes; there are many spaces for you to fill in blanks for your specific climate and harvest needs.

Buzzzzz

Most of the bee books in the Miller Library collection are either guides to keeping honey bees or field guides to native bees. Two new books by Pacific Northwest authors (if you include Northern California) have a different focus: living with bees as an active, vibrant part of your garden.

While this may include European honey bees, the focus is on less well-known native bees. Most of these are solitary bees that do not form hives or make honey, yet are outstanding pollinators. "Mason Bee Revolution" by Dave Hunter and Jill Lightner (both from the Seattle area) emphasizes the encouragement and care of Mason bees for spring pollination, followed by leafcutter bees for the summer.

To these authors, the bees are almost pets. While the



care requirements are minimal compared to many other garden tasks, they still are important and can be a fun and useful way to share bee knowledge with friends and neighbors.

You'll learn that storing your Mason bee cocoons in the refrigerator is an ideal winter home, if you don't mind them sharing the crisper with your salad greens. However, leafcutter bees are best kept a bit warmer, such as in an unheated garage. Why go to all this trouble? Mason bees left outside are at risk from several pests. Preventing pest damage "...is the primary reason for harvesting cocoons. We want our bees to thrive, not just survive, for next season's pollination."

Kate Frey and Gretchen LeBuhn in "The Bee-Friendly Garden" consider all the various



types of native bees found in Northern California and how to create an inviting environment for them. There is a chapter on recommended bee-friendly plants, both woody and herbaceous, always with an emphasis on natives. There are lists of plants to avoid, including those with double flowers—since single, pollen-rich flowers have

"Going to Seed"

The title essay from Charles Goodrich's 2010 book:

"January evenings, I sit by the fire, salivating over the latest fashion magazines—Burpee's, Wayside Gardens, Johnny's Selected Seeds—dreaming that I'm still a young stud, still up for double-digging a new bed, getting it on with the latest hybrids.

Once I was biodynamic. I used to do a lot of heavy mulching. I tried my hand at companion plantings, played around with French intensive. There was a time I'd dibble seed into any dirt I came across.

But I'm done sowing wild oats. I'm not planning to graft a branch on some other guy's tree. Anyway, who cares who can raise the biggest zucchini. I'm happy just looking at the pictures."

more to offer to pollinators. Thinking from the bee's perspective, you are advised to plant more than single specimens, otherwise they "... may not have enough floral rewards to make it worthwhile."

Providing sufficient nesting options is critical. While the authors briefly cover human-made nests and bee "hotels," they encourage a more passive approach, such as using plants that have naturally hollow stems and leaving a few logs around. They recommend leaving some bare patches of ground, free of layers of mulch that are troublesome for bees to dig through. Of course, like all wildlife, your bees need to have a pesticide-free environment.

According to his website, Charles Goodrich supported his poetry and other writings with a 25-year career as a professional gardener in Corvallis, Oregon. "Going to Seed" is a fine example of his avocation. Reading through his selection of brief essays, organized by seasons, I'm keenly reminded of the many forms of life we can observe in our gardens. After reading the other books reviewed in this section, I was struck by this quotation from an essay by Goodrich titled "The Master":

"It's hard to take this bumblebee seriously, with his stubby wings, pudgy thorax, geode-sic eyes. When he lifts his ponderous body in flight, he fudges several laws of aerodynamics. If this is how plants get pollinated, it's a wonder the planet survives. Weird, how evolution flirts with absurdity."☞

BRIAN R. THOMPSON is the manager and curator of the Elisabeth C. Miller Library of the University of Washington Botanic Gardens. He is also a member of the "Bulletin" Editorial Board.

Bibliography

Bale, Jeffrey. "The Gardens of Jeffrey Bale." Eugene, OR: Self-published, 2010. ISBN: None, \$74.49 from author's website.

Deardorff, David and Kathryn Wadsworth. "What's Wrong with my Plant? (And How do I Fix It?): A Visual Guide to Easy Diagnosis and Organic Remedies." Portland, OR: Timber Press, 2009. ISBN: 978-1-60469-098-9, \$34.95.

Frey, Kate and Gretchen LeBuhn. "The Bee-Friendly Garden: Design an Abundant, Flower-Filled Yard That Nurtures

Bees and Supports Biodiversity." Berkeley, CA: 10 Speed Press, 2016. ISBN: 978-1-60774-763-5, \$19.99.

Goodrich, Charles. "Going to Seed: Dispatches from the Garden." Eugene, OR: Silverfish Review Press, 2010. ISBN: 978-1-878851-58-1, \$14.95.

Hunter, Dave and Jill Lightner. "Mason Bee Revolution: How the Hardest Working Bee can Save the World One Backyard at a Time." Seattle: Skipstone, 2016. ISBN: 978-1-59485-963-2, \$16.95.

McCrate, Colin and Brad Halm. "Good Grown Right, in Your Backyard: A Beginner's Guide to Growing Crops at Home." Seattle: Skipstone, 2012. ISBN: 978-1-59485-683-9, \$24.95 (reviewed in the "Bulletin", Winter 2013).

McCrate, Colin and Brad Halm. "High-Yield Vegetable Gardening: Grow More of What You Want in the Space You Have." North Adams, MA: Storey Publishing, 2015. ISBN: 978-1-61212-396-7, \$18.95.

Silver, Johanna and Marion Brenner, photographer. "The Bold Dry Garden: Lessons from the Ruth Bancroft Garden." Portland, OR: Timber Press, 2016. ISBN: 978-1-60469-670-7, \$34.95.

Tweten, Wendy and Debbie Teashon. "Gardening for the Homebrewer: Grow and Process Plants for Making Beer, Wine, Gruit, Cider, Perry, and More." Minneapolis: Voyageur Press, 2015. ISBN: 978-0-7603-4563-4, \$21.99.



Arboretum Shop
WASHINGTON PARK ARBORETUM

**NOW SERVING COFFEE, TEA,
COCOA AND COOKIES**



Open 10 AM to 4 PM daily
Ten percent discount for Foundation members

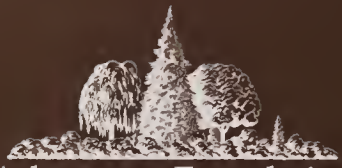


**PARTNERSHIP
berger**

New Zealand Forest

Landscape Architecture
Urban Design

206.325.6877
bergerpartnership.com



Arboretum Foundation

Washington Park Arboretum

2300 Arboretum Drive East

Seattle WA 98112-2300

www.arboretumfoundation.org

NONPROFIT ORG.

U.S. POSTAGE

PAID

SEATTLE, WA

PERMIT NO. 126

An arboretum
is a dynamic
collection of
woody plants
for research,
education,
conservation
and display.

ELISABETH C MILLER LIBRARY
UW BOTANIC GARDENS
3501 NE 41ST STREET
PO BOX 354115
SEATTLE, WA 98195-4115



Pinus parviflora 'Ogon Janome'

molbak's
garden+home

A proud supporter of the
Washington Park Arboretum,
Molbak's has been helping
Northwest gardeners bring
lasting beauty to their own
backyards for generations.

- Inspiring ideas
- Informative seminars
- Gorgeous plants for garden + home

(425) 483-5000 • 13625 NE 175th St., Woodinville • molbaks.com